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REMARKS

Applicants appreciate the Office's review of the present application. In response to the Office Action, the cited references have been reviewed, and the rejections and objections made to the claims by the Examiner have been considered. In order to render the claims more clear and definite, and to emphasize the patentable novelty thereof, claims 2-6, 17-20, 24-25, and 31-32 have been amended, claims 1, 16, 26, and 28-30 have been cancelled without prejudice, and new claims 33-38 have been added. Support for any claim amendments and new claims is found in the specification, claims, and drawings as originally filed, and no new matter has been added. Accordingly, all claims presently on file in the subject application are in condition for immediate allowance, and such action is respectfully requested.

Rejections**Rejection Under 35USC §103**

Claims 2-8, 10, 12-15, 17-25, 27, and 31-32 have been rejected under 35 USC §103(a), as being unpatentable over U.S. patent application publication 2002/0191517 by Honda ("Honda") in view of U.S. patent 5,119,363 to Satoh et al. ("Satoh"). Applicants respectfully traverse the rejection and request reconsideration.

As to a rejection under §103(a), the U.S. Patent and Trademark Office ("USPTO") has the burden under §103 to establish a *prima facie* case of obviousness by showing some objective teaching in the prior art or generally available knowledge of one of ordinary skill in the art that would lead that individual to the claimed invention. See *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). The Manual of Patent Examining Procedure (MPEP) section 2143 discusses the requirements of a *prima facie* case for obviousness. That section provides as follows:

To establish a *prima facie* case of obviousness, three basic criteria

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must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and reasonable expectation of success must be found in the prior art, and not based on applicant's disclosure.

The rejection of independent claim 32, and its dependent claims 2-4 and 17-19, is respectfully traversed for at least the following reasons. Claim 32 recites:

"32. (Currently amended) An optical disk, comprising:
a label region on the optical disk comprising a writeable material; and
a plurality of substantially identical disk speed features, disposed on the disk in an annular ring and located to be readable when writing the label region to convey disk speed data, wherein each of the disk speed features is substantially equally spaced from two adjacent others of the disk speed features in an annular ring located at a particular radial position on the disk, and wherein an angular span of each disk speed feature is substantially identical to an angular span between each two disk speed features." (emphasis added)

The Office has not established a *prima facie* case of obviousness at least because the applied references do not teach or suggest all of Applicant's claim limitations.

With regard to the plurality of substantially identical disk speed features, the Office admits that "Honda does not disclose: 'a plurality of substantially identical disk speed features, located to be readable when writing the label region, to convey disk speed data without use of any other features on the optical disk', but states that the Satoh reference discloses such features at Fig. 8, element 20, and col. 6, line 55 – col. 7, line 5 (Final Office Action, p.3). In addition, the Office states that "In Honda in view of Satoh each of the disk speed features is substantially equally spaced from two adjacent others of the disk speed features in an annular ring located at a particular radial position on the disk (apparent from Fig. 8)" (Final Office Action, p.5)

Claim 32 has been amended herein to recite that "an angular span of each disk speed feature is substantially identical to an angular span between each two disk speed features". This

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feature is clearly illustrated in Fig. 1 (disk speed features 112 and gaps therebetween) and Fig. 2 (disk speed features 202 and gaps therebetween).

Such a limitation of the substantially identical disk speed features is not taught by the Honda reference (since the Office admits that it teaches no substantially identical disk speed features at all) or by the Satoh reference. With regard to features of the optical disk, the Satoh reference teaches that:

"FIG. 8 is a top plan view of the second embodiment optical disk which comprises a plurality of rotation index marks 20 corresponding to the index mark 9 of FIG. 2 and a plurality of sector index marks M1 to M8 indicative of positions of sector regions of the disk 1. These two kinds of index marks 20 and M1 to M8 are circularly arranged on a single band. The disk 1 comprises a recording track region 7 having groove-like guide tracks, a track address region A formed on the guide tracks in advance, and eight sector regions S1 to S8. The band having the two kinds of, index marks 20 and M1 to M8 is located inside the recording track region 7. The address region A comprises a separation or margin region GA and a track address data region DA, while each of the sector regions S1 to S8 comprises a separation or margin region G1, G2 ... or G8, and a data recording region D1, D2 ... or D8. The separation regions GA and G1 to G8 are not used for recording any information, and are provided for separating the data recording regions D1 to D8 from each other so that data is not erroneously written across two data recording regions." (col. 6, lines 4-25)

As previously indicated, the Office considers rotation index marks 20 of Fig. 8 to correspond to the disk speed features of Applicants' invention. The angular span of rotation index marks 20 corresponds to the angular span of Gn, as indicated by the radial lines of Fig. 8. The angular span between two disk speed features corresponds to the angular span of Dn, also as indicated by the radial lines of Fig. 8. It is evident from Fig. 8 that the angular span of Dn is significantly greater than the angular span of Gn. This may be because data recording regions Dn contain the data stored on the optical disk, while the separation/margin regions Gn are not used for recording information but separate the data recording regions Dn from each other (col. 6, lines 1-25).

Therefore, for the reasons discussed herein, the applied references do not teach or suggest all of Applicants' claim limitations.

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Furthermore, the Office has not established a *prima facie* case of obviousness at least because there is no suggestion or motivation to modify the reference or to combine reference teachings. The proposed modification or combination of references, even if obvious, would not produce the claimed invention because the combination would be inoperative to produce the intended results of either reference.

In the Satoh reference, the track region 7 (Fig. 2) of the optical disk to which data can be written has "groove-like guide tracks" (col. 4, line 15). Recording of data on the optical disk is accomplished by applying "a tiny spot of laser light beam, which is focused so that the diameter is less than 1 micrometer" on a desired location of the optical disk (col. 1, lines 12-15). The positioning of the optical head 28 (Fig. 5) relative to the optical disk 1 is accomplished by a tracking control that "is effected so as to follow the zigzag motion caused by the eccentricity of the guide tracks with the above-mentioned tiny spot focused on the groove-like track" (col. 1, lines 36-39). For example, "[t]he movement of the optical head 28 is performed with the tracking control of the optical head switched off, by counting the number of crossing tracks represented by a track crossing signal of a tracking error signal by means of a crossing track number counter 38" (col. 7, lines 43-48). Once the optical head is position such that it "faces the writing track, tracking control is effected" and "a laser light beam is applied to the optical disk 1 for effecting writing and reading" (col. 7, line 58 – col. 8, line 2).

During the above operations, the optical disk is positioned according to the Satoh reference in such a manner that the groove-like tracks are detectable by the optical disk drive. When the optical disk 10 (Fig. 1) of the Honda reference is positioned for data recording with the substrate 12 adjacent the optical pickup of the disk drive, any grooves would be visible through the substrate 12, as is required for data read or write operations. However, when the optical disk drive of the Honda reference operates to form visible markings on the optical disk 10, the optical disk is inverted in the disk drive such that the label surface side 22 is adjacent the optical pickup so that visible marks may be formed in the labeling layer 18. In this configuration, the grooves that are visible through the substrate 12 would not be visible from the label surface side 22; reflective layer 16 would block

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visibility of the grooves. Without the ability to count and track the grooves, the disk drive of the Satoh reference could not operate. Also for this reason, the Satoh reference teaches away from combination with the Honda reference.

Applicants respectfully traverse the Office's assertion that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the features recited in the claims of Applicants' invention. Such could be possible only in hindsight and in light of Applicants' teachings. Therefore, the rejection is improper at least for that reason and should be withdrawn.

The rejection of independent claim 5, and its dependent claims 6-8, 10, 12-15, and 27, is respectfully traversed for at least the following reasons. Claim 5 recites:

"5. (Currently amended) An optical disk, comprising:
a label region on the optical disk comprising a writeable material;
substantially identical disk speed features, disposed on the disk in a first annular ring at a first radial position and located to be readable when writing the label region, to convey disk speed data; and
disk angular orientation features different from the disk speed features, disposed on the disk in a second annular ring at a second radial position different from the first radial position and located to be readable when writing to the label region, to convey disk angular orientation data, wherein at least some of the disk angular orientation features and at least some of the disk speed features have the same angular position." (emphasis added)

The Office has not established a *prima facie* case of obviousness at least because the applied references do not teach or suggest all of Applicant's claim limitations.

With regard to the disk angular orientation features, the Office admits that Honda "does not disclose 'disk angular orientation features different from the disk speed features, located to be readable when writing to the label side, to convey disk angular orientation data', but states that the Satoh reference discloses such features at Fig. 8, in the form of sector index marks M1 to M8, and col. 7, lines 5-25 (Final Office Action, p.5). In addition, the Office states that "In Honda in view of Satoh each of the disk speed features is substantially equally spaced from two adjacent others of the disk speed features in an annular ring located at a particular radial position on the

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disk (apparent from Fig. 8))" (Final Office Action, p.5).

With regard to the recited arrangement of these features in different annular rings, the Office admits that Honda in view of Satoh does not disclose that "the disk speed features define a first annular ring and the disk angular orientation features define a second, different annular ring" (Final Office Action, p.8, rejecting claim 6). However, the Office contends that

"[a]t the time the invention was made, it would have been an obvious matter of design choice to have the features in two annular rings because the Applicant has not disclosed that having two rings provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with a singular annular ring (Applicant admits this in paragraph 28 of the specification)" (Final Office Action, p.8)

Applicants disagree that the limitation of having the features in two annular rings is an obvious matter of design choice.

First, Applicants do not agree that there is any admission in the specification that Applicants' invention would perform equally well with a singular annular ring. In relevant part, the specification states that "While Figs. 1 and 2 provide exemplary disk speed and disk angular orientation features, other implementations are possible. For example, the disk speed features and disk angular orientation features may be combined into an annular ring of features having information present in both 202, 204" (paragraph [0028]). It is noted that there is no admission anywhere in this statement that indicates that equivalent performance will be obtained from a first embodiment of the invention that has a first annular ring configuration, and a second embodiment of the invention that has a different second alternative annular ring configuration. The Office is reading into Applicants' specification a statement of relative performance which simply is absent. It is well known that some embodiments of an invention may perform better or worse than other embodiments of the invention. Paragraph [0028] is silent as to the relative performance of the various embodiments.

Second, it is noted that Fig. 2 of Applicants' specification illustrates a first annular ring of disk speed features 202 and a second annular ring of disk angular orientation features 204 that are

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spaced apart on optical disk 200 by a gap. The most reasonable interpretation of paragraph [0028], in discussing features 202,204, is that the gap between the two annular rings may be collapsed to form adjacent or contiguous sub-rings, as illustrated in Fig. 1, which may be considered together as a single annular ring. This is the most reasonable interpretation because the specification does not disclose how the two rings would be collapsed into one ring with both the disk speed features and the disk angular orientation features located at the same radial position. Applicants believe that constructing a single annular ring with both the disk speed features and the disk angular orientation features at the same radial position would not be obvious to one of ordinary skill in the art at the time the invention. If the disk angular orientation features were to be superimposed on top of the disk speed features, a variety of irregularly-shaped marks would be obtained, with no disclosure as to how, or even whether, such marks could be discriminated and interpreted to provide the correct disk speed and disk angular orientation information. Alternatively, if the disk angular orientation features were to be disposed in an interspersed form in some angular portions of a single annular ring and the disk speed features in other angular portions (as is done for the rotation index marks 20 and the sector index marks Mn of the Satoh reference), there similarly is no disclosure in Applicants' specification of how, or even whether, such an arrangement would produce acceptable printing operation. It is clear that in an interspersed annular ring, there would be periods of time when the disk angular orientation features are being tracked but the disk speed features are not being tracked, and vice-versa. Therefore, during periods of time when the disk angular orientation features are being tracked the disk speed accuracy could be degraded, while during other periods of time when the disk speed features are being tracked the disk angular positioning accuracy could be degraded. Either or both of these effects would disadvantageously and undesirably degrade the image quality of the labeled image.

Third, claim 5 has been amended to recite the limitations of substantially identical disk speed features, disposed on the disk in a first annular ring at a first radial position, and disk angular orientation features different from the disk speed features, disposed on the disk in a

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second annular ring at a second radial position different from the first radial position, wherein at least some of the disk angular orientation features and at least some of the disk speed features have the same angular position. Conversely, because the rotation index marks 20 and sector index marks Mn of the Satoh reference are interspersed in the annular ring, none of the rotation index marks 20 has the same angular position as any of the sector index marks Mn. Furthermore, claim 5 includes structural limitations that, for similar reasons as stated above, would not read on a single annular ring embodiment in which disk angular orientation features were superimposed on top of the disk speed features.

Fourth, the specification does disclose that the two rings provides an advantage, and is used for a particular purpose. In one embodiment, described with reference to Fig. 2, the first annular ring of disk speed features 202 and the second annular ring of disk angular orientation features 204 are spaced apart on optical disk 200 by a gap. The purpose and advantage of separating the rings of features 202,204 by a gap is so that "the disk speed features 202 could be read by the encoder 406 (Fig. 4) and the disk angular orientation features 204 are readable by an OPU 710 (optical pick-up unit) of the optical disk drive 700" (para. [0027], lines 8-11). In this embodiment, the gap allows the second ring to be positioned where the OPU 710 can read the disk angular orientation features, since "the encoder 406 is typically able to read information on the disk that is radially inside or outside a region readable by the OPU (optical pick-up unit) 710" (para. [0035], lines 21-23).

Therefore, for the reasons discussed herein, the applied references do not teach or suggest all of Applicants' claim limitations. Furthermore, the Office has not established a *prima facie* case of obviousness at least because there is no suggestion or motivation to modify the reference or to combine reference teachings, for similar reasons as explained heretofore with reference to claim 32.

Applicants respectfully traverse the Office's assertion that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the features recited in the claims of Applicants' invention. Such could be possible only in hindsight and in

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light of Applicants' teachings. Therefore, the rejection is improper at least for that reason and should be withdrawn.

Independent claim 20 recites limitations similar to those of claims 32 and 5, discussed above:

"20. (Currently amended) A method of making an optical disk, comprising:
molding, in a first annular ring at a first radial position, a plurality of substantially identical disk speed features configured to be viewed during labeling of the optical disk, wherein an angular span of each disk speed feature is substantially identical to an angular span between each two disk speed features;
defining, in a second annular ring at a second radial position, disk angular orientation features, different from the disk speed features, configured to be viewed during labeling of the optical disk, wherein at least some of the disk angular orientation features and at least some of the disk speed features have the same angular position; and
coating a label region on the label side of the optical disk with an OPU-writable coating." (emphasis added)

For similar reasons as explained heretofore with regard to claims 32 and 5, the features of the present invention are not taught or suggested by the cited references. Applicants respectfully traverse the Office's assertion that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the features recited in the claims of Applicants' invention. Such could be possible only in hindsight and in light of Applicants' teachings. Therefore, the rejection of independent claim 20, and its corresponding dependent claims 21-24 and 31, is improper at least for that reason and should be withdrawn.

The rejection of claim 25 (formerly dependent, but rewritten herein in independent form) is respectfully traversed for at least the following reasons. Claim 25 recites:

"25. (Currently amended) An optical disk, comprising:
a label region on the optical disk comprising a writeable material;
disk speed features, located to be readable when writing the label region, to convey disk speed data; and
disk angular orientation features different from the disk speed features, located to be readable when writing to the label side, to convey disk angular orientation data, wherein at least

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some of the disk angular orientation features are of different sizes.” (emphasis added)

The Office has not established a *prima facie* case of obviousness at least because the applied references do not teach or suggest all of Applicant's claim limitations.

As discussed previously with regard to claim 5, the Office admits that Honda does not disclose disk angular orientation features different from the disk speed features, located to be readable when writing to the label side, to convey disk angular orientation data, and it thus follows that Honda cannot disclose that at least some of the disk angular orientation features are of different sizes. However, the Office states that the Satoh reference discloses the latter limitation at col. 6, lines 35-60, and Figs. 5A-5B. Applicants disagree.

Figs. 5A-B each show an index mark 9, one type of which corresponds to the disk angular orientation feature. These figures illustrate that a single index mark 9 is composed of multiple sub-portions. The sub-portions are segments of individual guide tracks, or individual pits (col. 4, lines 45-54). Various ones of the sub-portions are of different sizes which, when arranged as illustrated, give the index mark 9 a particular shape, such as the pie-shaped wedge shown in these figures. With regard to size and shape of the various index marks, the Satoh reference discloses only that “the structure of the rotation index marks 20 is different from that of the sector index marks M1 to M8” (col. 6, lines 45-47). There is no teaching in the Satoh reference that the size or shape of the sector index marks M1 to M8, which correspond to the disk angular orientation features, change from one sector index mark to another, as required by claim 25.

Therefore, for the reasons discussed herein, the applied references do not teach or suggest all of Applicants' claim limitations. Furthermore, the Office has not established a *prima facie* case of obviousness at least because there is no suggestion or motivation to modify the reference or to combine reference teachings, for similar reasons as explained heretofore with reference to claim 32.

Applicants respectfully traverse the Office's assertion that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the features recited in the claims of Applicants' invention. Such could be possible only in hindsight and in

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light of Applicants' teachings. Therefore, the rejection is improper at least for that reason and should be withdrawn.

Claims 9 and 11 have been rejected under 35 USC §103(a), as being unpatentable over U.S. patent application publication 2002/0191517 by Honda ("Honda") in view of U.S. patent 5,119,363 to Satoh et al. ("Satoh"), and further in view of U.S. patent 6,109,324 to Bugner et al. ("Bugner"). Applicants respectfully traverse the rejection and request reconsideration at least based on the dependence of these claims on independent claim 5, whose reasons for allowability over the Honda and Satoh references have been discussed heretofore and against which the Bugner reference has not been cited. Therefore, the rejection is improper at least for these reasons and should be withdrawn.

Conclusion

Attorney for Applicants has reviewed each one of the cited references made of record and not relied upon, and believes that the claims presently on file in the subject application patentably distinguish thereover, either taken alone or in combination with one another.

Therefore, all claims presently on file in the subject application are in condition for immediate allowance, and such action is respectfully requested. If it is felt for any reason that direct communication with Applicant's attorney would serve to advance prosecution of this case to finality, the Examiner is invited to call the undersigned Robert C. Sismilich, Esq. at the below-listed telephone number.

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